

# Curriculum Vitae

Alonso Contreras-Astorga

## Personal Information

Nationality: Mexican  
Born: 16<sup>th</sup> June 1982, Guadalajara, Mexico.  
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## Education

- 2009 – 2013      **Ph. D. in Physics**  
CINVESTAV Centro de Investigación y de Estudios Avanzados del IPN,  
Physics Department,  
Mexico City, Mexico.
- 2005 – 2007      **Master in Science**  
CINVESTAV Centro de Investigación y de Estudios Avanzados del IPN,  
Physics Department,  
Mexico City, Mexico.
- 2000 – 2004      **BS in Communications and Electronics Engineering**  
Universidad de Guadalajara,  
Centro Universitario de Ciencias Exactas e Ingenierías,  
Guadalajara, Jalisco, Mexico.

## Areas of Specialization

Quantum mechanics and mathematical physics.  
Exact solutions of the Schrödinger and Dirac equations.  
Coherent states.

## Publications

- A Contreras-Astorga**, DJ Fernández, J Negro, *"Solutions of the Dirac Equation in a Magnetic Field and Intertwining Operators"*, SIGMA 8 (2012) 082.
- A Contreras-Astorga**, DJ Fernández, *"Coherent States for the Asymmetric Penning Trap"*, Int J Theor Phys **50** (2011) 2084-2093.
- A Contreras-Astorga**, DJ Fernández, M Velázquez, *"Coherent states for quadratic Hamiltonians"*, J Phys A **44** (2011) 035304.
- A Contreras-Astorga**, DJ Fernández, *"Asymmetric Penning trap coherent states"*, AIP

Conference Proceedings **1256** (2010) 239-245.

**A Contreras-Astorga**, DJ Fernandez, *"Supersymmetric partners of the trigonometric Pöschl-Teller potentials"*, J Phys A 41 (2008) 475303.

**A Contreras-Astorga**, DJ Fernandez, *"Second-order SUSY partners of the trigonometric Pöschl-Teller potentials"*, J Phys: Conf Ser **128** (2008) 012043.

**A Contreras-Astorga**, DJ Fernandez, *"First-Order SUSY Partners of the Trigonometric Pöschl-Teller Potential"*, AIP Conference Proceedings **960** (2007) 55-60.

JL Flores, **A Contreras Astorga**, G Garcia-Torales, N Casillas, M Barcena-Soto, *"Design and analysis of fiber optical distance sensor"*, Proc. SPIE **5875** (2005), 58750P.

## Research Stays

Jan – Jun 2011 As a part of the Ph. D. program I was as a visiting graduate student researcher at the University of Valladolid, Spain, working with Dr. Javier Negro Vadillo.

## Organizing Conferences

November 2011 Member of the organizing committee of the **Quantum Fest 2011**, such congress was held in the CINVESTAV facilities as a part of the celebration of its 50<sup>th</sup> anniversary.

## Conferences

August 2013 I gave the talk *"Painlevé IV coherent states"*, in the **8<sup>th</sup> International Symposium on Quantum Theory and Symmetries**.  
El Colegio Nacional, Mexico City, México.

April 2012 I gave the talk *"SUSY partners of the radial Hamiltonian of the hydrogen atom"* in the event **V Reunión de la División de Información Cuántica**.  
Instituto Nacional de Astrofísica, Óptica y Electrónica, Tonantzintla, Mexico.

February 2012 I gave the talk *"Solutions of the Dirac Equation in a Magnetic Field and Intertwining Operators"*, in the **Symposium on Superintegrability, Exact Solvability, and Special Functions**.  
Cuernavaca, Mexico.

July 2010 I attended to the event **Supersymmetric Quantum Mechanics and Spectral Design**.  
Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain.

July 2010 I gave the talk *"Coherent States for the Asymmetric Penning Trap"* in the event **Recent Advances in Time-Asymmetric Quantum Mechanics, Quantization and Related Topics**.  
Universidad de Valladolid, Valladolid, Spain.

December 2009 I gave the talk *"Asymmetric Penning trap coherent states"* in the event **VIII Mexican School on Gravitation and Mathematical Physics**.  
Playa del Carmen, Mexico.

- July 2007 I presented the poster entitled "*Second-order SUSY partners of the trigonometric Pöschl-Teller potentials*", in the **5<sup>th</sup> International Symposium on Quantum Theory and Symmetries**.  
Universidad de Valladolid, Valladolid, Spain.
- July 2007 I gave the talk "*First-Order SUSY Partners of the Trigonometric Pöschl-Teller Potential*" in the **Advanced Summer School 2007**.  
CINVESTAV, Mexico City, Mexico.
- October 2004 I presented the poster entitled "*Design and analysis of fiber optical distance sensor*", in **XLVII Congreso Nacional de Física**.  
Sociedad Mexicana de Física, Sonora, Mexico.
- June 2004 I gave the talk "Effects when using stretched optical fibers on photo-current images in photoelectrochemical systems" in the workshop **Taller de Procesamiento Digital de Imágenes y Óptica**.  
Centro de Investigaciones en Matemáticas CIMAT, Centro de Investigaciones en Óptica CIO, Sociedad Mexicana de Física SMF, Academia Mexicana de Óptica, Guanajuato, Mexico.

## Teaching Experience

- 2012 Invited lecturer in the course "New discoveries and application of quantum mechanics" in the program of Courses of Actualization in the Discipline, ITESM Campus Estado de México.
- 2011, 2012 Class teacher for the course "General Physics" in the Ph. D. program "Doctorado Transdisciplinario de Desarrollo Científico y Tecnológico para la Sociedad", at CINVESTAV (two semesters).
- 2010 Teacher assistant of the course "Mathematical Methods II" in the M. Sc. program of the physics department of CINVESTAV.
- 2009 Teacher assistant of the course "Quantum Mechanics II" in the M. Sc. program of the physics department of CINVESTAV.